Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

MAS 4105 Test 4 Spring 2015

1. (10 points) Let  Find the orthogonal projection of  onto 

2. (10 points) Find bases for the four fundamental subspaces of the matrix



3. (10 points) Find the eigenvalues and corresponding eigenvectors for the following matrix.



4. (10 points) Use mathematical induction to prove Theorem 5.5: Let be a linear operator on a vector space , and let  be distinct eigenvalues of If are eigenvectors of such that corresponds to , then the set is linearly independent.